

CLAIMS

1/ A composition comprising:

a) a copolymer obtained from a thermoplastic or thermosetting resin and containing at least one

5 alkoxyasilane; and

b) a mineral filler selected from compounds of B, Al, Ti, Zn, Zr, Cr, Fe, and silicates, and mixtures thereof.

10 2/ A composition according to claim 1, in which the thermoplastic or thermosetting resin is selected from the group comprising: polyamide imide (PAI), polyester imide (PEI), polyimide (PI), polyester (PE), polyurethane (PU), polyvinylacetal (PVA), and mixtures thereof.

15 3/ A composition according to claim 1, in which the copolymer is obtained by adding 10% to 50%, and preferably 20% to 40% by weight of alkoxyasilane.

20 4/ A composition according to claim 1, in which the alkoxyasilane is selected from tetraalkoxyasilanes such as tetraethoxyasilane (TEOS), and trialkoxyasilanes such as trimethoxyasilane and aminopropyl-trimethoxyasilane.

25 5/ A composition according to claim 1, in which the mineral filler is selected from oxides and nitrides of B, Al, Ti, Zn, Zr, Cr, and Fe, and is preferably titanium dioxide.

30 6/ A composition according to claim 1, in which the mineral filler is selected from silicates such as clays, nanocomposite clays, and mica.

35 7/ A composition according to claim 1, comprising 2% to 20% by weight, and preferably 5% to 15% by weight of mineral filler.

8/ A composition according to claim 1, in which the mineral filler has a specific surface area greater than 40 m²/g.

- 5 9/ An insulation varnish for a winding wire, the varnish comprising a composition in accordance with claim 1.

- 10/ A method of manufacturing a composition in accordance with claim 1, the method comprising the following steps:
- 10 · copolymerizing the thermoplastic or thermosetting resin with at least one alkoxyasilane;
- adding a mineral filler selected from compounds of B, Al, Ti, Zn, Zr, Cr, Fe, silicates, and mixtures thereof; and
- 15 · homogenizing.

- 11/ A method according to claim 10, in which synthesis is performed in a solvent selected from ortho-cresyl, meta-cresyl, para-cresyl, cresylic acid, N-methylpyrrolidone, dimethylacetamide (DMAC), and mixtures thereof.
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- 12/ A method according to claim 10, in which the reaction is performed in the presence of a catalyst selected from pTSA, dibutyltin, and a polysiloxane.
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- 13/ A method of manufacturing a winding wire, the method comprising the following steps:
- applying a varnish comprising a composition in accordance with claim 1 on the wire; and
- 30 · setting the varnish.

- 14/ A winding wire obtained by the method of claim 13.

- 15/ A coil comprising a conductor wire covered in a varnish comprising a composition in accordance with claim 1.
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